

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1 - 25 (Canceled)

26. (New) A vehicle for travel through a conduit comprising:

an extensible body capable of extending and retracting in length;

there being connected to the extensible body a forward arrangement and a rearward arrangement, such that the distance of separation between said forward and rearward arrangements alters as the extensible body extends and retracts;

each of said forward and rearward arrangements including a wall-engaging mechanism;

each wall-engaging mechanism comprising a plurality of legs attached by a pivotable connection at the end closest the extensible body, said connection allowing the leg to pivot outwardly; said leg including a wall-engaging foot portion distal to the pivotable connection; there being a single actuator arrangement associated with each wall engaging mechanism to effect movement of the

legs of the wall engaging mechanism about their pivotable connections;

at least one of said forward and rearward arrangements comprising at least one wheel arrangement capable of engaging the internal wall of a conduit; and wherein a said wheel arrangement is connected by a retractable connection allowing for retraction of the wheels away from engaging a conduit wall when a said leg of the arrangement is in an extended position.

27. (New) The vehicle of claim 26 wherein said actuators provide for at least co-ordinated movement of legs within a wall engaging mechanism.
28. (New) The vehicle of claim 26 wherein the extensible body comprises a cylinder and rod, one of the forward and rearward arrangements being connected to the cylinder, and the other arrangement connected to the rod.
29. (New) The vehicle of claim 28 in which the actuator arrangement of the wall engaging mechanism of either of the forward or rearward arrangements which is attached to the cylinder of the extensible body, comprises an annular travelling cylinder about the cylinder of the extensible body.
30. (New) The vehicle of claim 28 in which the actuator arrangement of the wall engaging mechanism of either of

the forward or rearward arrangements which is attached to the rod of the extensible body, comprises a cylinder arrangement fixed to the rod of the extensible body.

31. (New) The vehicle of claim 28 wherein both actuator arrangements are substantially coaxial with the longitudinal axis of the cylinder and rod of the extensible body.
32. (New) The vehicle of claim 26 wherein said within a wall engaging mechanism are of substantially equal length, and distributed to radiate outwardly, relative to the longitudinal axis of the extensible body, with substantially equal angles of separation from each other.
33. (New) The vehicle of claim 26 wherein at least one wheel arrangement is resiliently connected to a said leg to allow the wheel arrangement to ride over irregularities in the wall of the pipe.
34. (New) The vehicle of claim 26 wherein a wall engaging foot portion is pivotably connected to a leg with which it is associated.
35. (New) The vehicle of claim 34 wherein each leg is pivotably attached to its wall engaging foot portion by a first pivot and to its associated forward or rearward arrangement by a second pivot; the wall-engaging mechanism further comprising a control link pivotally

attached to the wall engaging foot portion at one end by a third pivot and to the associated forward or rearward arrangement at its opposite end by a fourth pivot, to maintain the the wall engaging foot portion in substantially the same orientation as its associated leg pivots and extends outwardly.

36. (New) The vehicle of claim 26 wherein the wall engaging mechanism of the rearward arrangement includes a self-servo action automatically increasing the frictional engagement of the wall engaging foot portions with respect to the wall of a conduit, when a rearwardly directed force is applied to the rearward arrangement when the wall engaging foot portions are engaged will the conduit's wall.
37. (New) The vehicle of claim 1=26 wherein each wall-engaging mechanism is a modular assembly demountably fixed to the extensible body, thereby allowing the wall-engaging assemblies to be changed to accommodate different ranges of conduit sizes.
38. (New) The vehicle of claim 26 wherein the wall-engaging mechanism is remotely controlled with respect to extending and retracting the feet, allowing the apparatus to propel itself in a stepwise manner through the conduit in either direction.

39. (New) Apparatus for cleaning pipes comprising a vehicle as claimed in claim 26, further including loosening means for loosening material accumulated in the conduit.
40. (New) The apparatus of claim 39 wherein the loosening means comprises a rotary cutter mounted at the front of the forward member.
41. (New) The apparatus of claim 39 wherein a water spray is provided near the loosening means for lubrication, cleaning and aiding removal of loosened material.
42. (New) The apparatus of claim 39 further including a vacuum line for removing loosened material.
43. (New) The apparatus of claim 40 wherein said wheel arrangements are mounted on the front arrangement of the vehicle to support the cutter centrally within the conduit while the front arrangement is advanced.
44. (New) The apparatus of claim 39 further including a transporting device for transporting material in a first direction through a conduit, said transporting device including:

an elongate shaft adapted to be fixed to means for reciprocating the shaft in the first direction and an opposing second direction;

a plurality of paddles for impinging the material, the paddles being fixed to the shaft at longitudinally spaced positions, each paddle being adapted to close so as to occlude at least a lower section of the conduit when moved in the first direction and to open so as not to occlude at least the lower section of the conduit when moved in the second direction such that material is transferred in the first direction between adjacent paddles.

45. (New) The apparatus of claim 44 wherein said transporting device is either or both of actuated by reciprocation of the rearward member, or is fixed to the rearward member by a reciprocating actuator.
46. (New) The apparatus of claim 44 wherein each paddle is fixed to the shaft by a pivot.
47. (New) The apparatus of claim 44 wherein the paddles are at least partly circular for use in a cylindrical conduit.
48. (New) A vehicle as claimed in claim 26 which includes a camera for inspecting the state of the inside of a conduit.
49. (New) A method of operating a vehicle as claimed in claim 26 comprising:

alternately operating each actuator arrangement to simultaneously extend the legs of its wall-engaging mechanism to contact the wall of the conduit, and operating the extensible means to alternately move the forward and rearward arrangements when their respective legs are in a retracted position, and those of the other arrangement are not;

the sequence moving the vehicle in a stepwise manner along the conduit.

50. (New) A method of operating apparatus as claimed in claim 49, said method comprising operating the vehicle to travel along the inside of a conduit as well as cleaning the inside of the conduit into which it is positioned;
- said vehicle including loosening means fixed to its forward arrangement, the apparatus including a sensor for sensing the load applied to said loosening means when it is brought into contact with material to be cleaned from the conduit;
- said method also comprising:
- actuating the wall-engaging mechanism on the rearward member to engage the wall of the conduit to hold the rearward member in a stationary position;

operating the extensible body to advance the loosening means, and
modulating the rate at which the loosening means is advanced in accordance with the load measured by the sensor.

51. (New) A vehicle for travel through a conduit comprising:

an extensible body capable of extending and retracting in length;

there being associate with each end of the extensible body a wall-engaging mechanism comprising a plurality of legs attached by a pivotable connection at the end closest the extensible body, said pivotable connection allowing the leg to extend outwardly; said leg including a wall-engaging foot portion distal to the pivotable connection;

there being a single actuator arrangement associated with each wall engaging mechanism to effect synchronised outward and inward pivoting of the legs of the wall engaging mechanism about their pivotable connections; the arrangement allowing for alternate extension and retraction of the legs of each wall engaging mechanism, co-ordinating this with extension and retraction of the

extensible body to allow lengthwise movement of the vehicle within a conduit;
said vehicle including either or both of apparatus for the removal of material from the internal wall of a conduit, or inspection means for monitoring the interior of a conduit

52. (New) The vehicle of claim 51 when used within a conduit for either or both of the removal of material, and inspecting the interior of a conduit.